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(54) **LEPIDIUM PLANT NAMED 'DLEPMBEAD'**

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(58) **Field of Classification Search**

None

See application file for complete search history.

(56) **References Cited**

PUBLICATIONS

Mummenhoff et al 2004, American Journal of Botany 91(2): 254-261.*

* cited by examiner

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(57) **ABSTRACT**

A new and distinct *Lepidium rudera* plant named 'DLEPEMBEAD' characterized by upright growth habit. Foliage is distinctively pinnatisect, crispate and durable; colored near RHS Green 137B. Plant height commonly averages 90 cm, and foliage produced is an average length of 8 cm long.

5 Claims, 2 Drawing Sheets
(1 of 2 Drawing Sheet(s) Filed in Color)



Fig. 1



Fig. 2

LEPIDIUM PLANT NAMED 'DLEPEMBEAD'

FIELD OF THE INVENTION

The present invention relates to a new, distinct and stable variety of *Lepidium ruderales*, hereinafter referred to as 'DLEPEMBEAD'. The present invention relates to seeds which are the *Lepidium ruderales* 'DLEPEMBEAD', as well as, plants and plant parts produced by these seeds which have all of the morphological and physiological characteristics of the *Lepidium ruderales* 'DLEPEMBEAD'. The present invention also relates to methods for producing these seeds and plants of the *Lepidium ruderales* 'DLEPEMBEAD'. Furthermore, the present invention relates to a method of producing progeny *Lepidium* plants by crossing *Lepidium* 'DLEPEMBEAD', as either the female or seed or male or pollen parent, with another *Lepidium* plant and selecting progeny.

BACKGROUND OF THE INVENTION

The present invention relates to a new, distinct and stable variety of *Lepidium ruderales*, and hereinafter referred to by the variety denomination 'DLEPEMBEAD'. The new *Lepidium* 'DLEPEMBEAD' originated from a self-crossing made in a controlled breeding program by the inventor in March 2011, and then first flowered in March 2012, in Mishmar Hashiva, Israel. The parent is the *Lepidium ruderales* proprietary line identified by code LPR-Z-1 (unpatented). This proprietary line is the sole parent, as the resulting 'DLEPEMBEAD' is the result of a self-crossing of this single parent variety.

Lepidium is a member of the Brassicaceae family. *Lepidium ruderales* is a vascular land plant, native to temperate Asia and Northern and Eastern Europe. For the most part, plants of *Lepidium rurale* are annual or biennial, producing small or minute flowers.

To the inventor's best knowledge, there have not been significant commercial efforts to date to hybridize and produce new and interesting *Lepidium ruderales* varieties.

Over time, the inventor has trialed *Lepidium* and found it may be advantageously grown for ornamental horticultural uses. Typically, the plants are tolerant of hot, sunny conditions, and require little water.

Leaves of *Lepidium* can be sessile or stalked, normally basally occurring. *Lepidium* plants produce upright spikes of hermaphroditic flowers.

Asexual propagation of *Lepidium* can be performed by vegetative terminal cuttings, however, propagation is most commonly performed by sowing seeds.

Methods for cultivation and crossing of *Lepidium* are not well known. Brief reference to the species can be found in: *Brassicaceae, Capparaceae and Cleomaceae of North America Update*, database (version 2011) Updated for ITIS by the Flora of North America Expertise Network, in connection with an update for USDA PLANTS (2007-2010), which is herein incorporated by reference.

The *Lepidium ruderales* seeds and plants produced by this method are uniform with respect their morphological and physiological characteristics.

A need exists for a greater variety of *Lepidium* cultivars with practical and attractive ornamental features. Additionally, a need exists for additional *Lepidium ruderales* cultivars that can be easily propagated by seed, with consistent results. The new *Lepidium* 'DLEPEMBEAD' was developed through a controlled breeding program and exhibits unique, desirable and stable characteristics.

SUMMARY OF THE INVENTION

The present invention provides *Lepidium* plant selections that produce foliage which is pinnatisect and crispate, on tall plants. This interesting foliage is both novel and useful, as it can be successfully used in flower bouquets as filler plant material. These qualities distinguish the new cultivar from typical *Lepidium ruderales* varieties.

These and other objectives have been achieved in accordance with the present invention which provides 'DLEPEMBEAD' as a new *Lepidium* cultivar that is a product of a planned breeding program conducted by the inventor, Gavriel Danziger, in Moshav Mishmar Hashiva, Israel in 2011. The parent is the *Lepidium ruderales* inbred line identified by code LPR-Z-1 (unpatented).

The parental cultivar has a sufficient degree of homozygosity such that the progeny of the cross are genotypically and phenotypically uniform. The new *ruderales* 'DLEPEMBEAD' therefore can be produced by sexual reproduction by crossing the parent inbred line identified by the code LPR-Z-1 to produce a population of progeny plants, each of which has the combination of characteristics as herein disclosed for the new *Lepidium ruderales* 'DLEPEMBEAD'.

Seeds which are variety 'DLEPEMBEAD' are produced by crossing the parental inbred line identified by the code LPR-Z-1 and are to be deposited with the Korean Collection for Type Cultures (KCTC), Biological Resource Center, Korea Research Institute of Bioscience and Biotechnology (KRIBB), 125 Gwahak-ro, Yuseong-gu, Daejeon 305-806, Korea having deposit Designation KCTC-12666BP.

OBJECTS OF THE INVENTION

The present invention relates to seeds which produce *Lepidium ruderales* 'DLEPEMBEAD'. The present invention also relates to *Lepidium* plants, and parts thereof; having all the physiological and morphological characteristics of *Lepidium ruderales* 'DLEPEMBEAD'. The present invention relates to a plant produced from seeds which are *Lepidium ruderales* 'DLEPEMBEAD'. The present invention also relates to plant parts, such as pollen, seeds or inflorescence produced by *Lepidium ruderales* 'DLEPEMBEAD'.

The present invention relates to a method of producing seed which are *Lepidium ruderales* 'DLEPEMBEAD', by performing a self-crossing of *Lepidium ruderales* inbred line identified by code LPR-Z-1 (unpatented) and harvesting seeds produced from said cross.

The present invention also relates to a method of producing plants having all the physiological and morphological characteristics of the *Lepidium ruderales* 'DLEPEMBEAD' comprising the steps of (a) self-crossing *Lepidium ruderales* inbred line identified by code LPR-Z-1 (unpatented) (b) harvesting seeds produced from said cross; and (c) producing plants from said harvested seeds.

The present invention also relates to producing progeny plants from the cross of *Lepidium ruderales* 'DLEPEMBEAD', as the female or male parent, with another *Lepidium* plant, and selecting progeny plants from this cross.

BRIEF DESCRIPTION OF THE PHOTOGRAPHS

The patent or application file contains at least one drawing executed in color. Copies of this patent or patent application publication with color drawings will be provided by the Office upon request and payment of the necessary fees.

The accompanying photographs illustrate the overall appearance of the new *Lepidium ruderales* 'DLEPEMBEAD'.

showing the colors as true as is reasonably possible with colored reproductions of this type. Colors in the photographs may differ slightly from the color values cited in the detailed botanical description which accurately describes the color of 'DLEPEMBEAD'.

FIG. 1 shows a side view perspective of a typical plant of 'DLEPEMBEAD', at approximately 3 months of age from potting size, grown in a field in Beit Dagan, Israel.

FIG. 2 shows a close-up view perspective of the foliage.

DETAILED BOTANICAL DESCRIPTION

The present invention was created by the inventor, Gavriel Danziger during 2011, and flowered for the first time in 2012 in Mishmar Hashiva, Israel.

This invention is directed to *Lepidium* plant having all the morphological and physiological characteristics of the variety 'DLEPEMBEAD' produced from seeds which are the product of the self-cross of the *Lepidium ruderae* inbred line identified by code LPR-Z-1 (unpatented). The parent has a sufficient degree of homozygosity such that the progeny of the cross were, and continue to be, phenotypically uniform. The new variety 'DLEPEMBEAD' can therefore be produced by sexual reproduction by crossing of the inbred selection identified by the code LPR-Z-1 to produce a population of progeny plants, each of which has the combination of characteristics herein disclosed for the new variety 'DLEPEMBEAD'.

The following traits have been repeatedly observed and are determined to be unique characteristics of 'DLEPEMBEAD' which in combination distinguish this *Lepidium* as a new and distinct cultivar:

1. Pinnatisect foliage form
2. Crispate foliage
3. Upright growth habit;
4. Durable foliage
5. Mature height around 90 cm
6. Foliage length averaging 8 cm

The commercial cultivar known to the present inventor to be the most similar in comparison to the new *Lepidium ruderae* 'DLEPEMBEAD' is the *Lepidium* cultivar 'Ofarim', unpatented. Plants of the new variety 'DLEPEMBEAD' differ from plants of 'DLEPEMBEAD' primarily in foliage type. Foliage of 'DLEPEMBEAD' is pinnatisect whereas foliage of 'Ofarim' is non-dissected. Plants of 'DLEPEMBEAD' flower later compared to plants of 'Ofarim' as well.

'DLEPEMBEAD' has not been tested and observed under all possible environmental conditions. The phenotype of the new cultivar may vary with variations in environment such as temperature, light intensity, frequency of fertilization, composition of fertilizer, acetylene treatment, day length and humidity, without any change in the genotype of the plant.

For example, substantial differences in plant height and diameter, number of leaves, and branches can result depending on the growing conditions. Typically these plants are produced outdoors, and variations in temperature and humidity can produce different results.

The aforementioned photographs, together with the following observations, measurements and values describe the new *Lepidium* 'DLEPEMBEAD' as grown in a greenhouse in Mishmar Hashiva, Israel, under conditions which closely approximate those generally used in commercial practice. Plants of 'DLEPEMBEAD' were grown outdoors with day temperatures ranging from 20° C. to 35° C. and night temperatures ranging from 8° C. to 14° C. Daylength was approximately 12 hours. No artificial lighting or photoperiodic treatments were conducted, but plants of 'DLEPEMBEAD'

were treated with growth regulator. Plants were given one treatment of Gibberellic Acid at a concentration of 100 to 200 ppm. Such treatment is common, but not necessary to achieve commercial results

Color references are made to the Royal Horticultural Society Colour Chart (RHS), 2005 mini edition, except where general colors of ordinary significance are used. Color values were taken under daylight conditions in a greenhouse Mishmar Hashiva, Israel. The age of the plants of 'DLEPEMBEAD' described is about 90 days from planting a seedling plant. The seedling plant is approximately 5 weeks old.

Botanical Classification:

Lepidium ruderae

Parentage:

Parent: *Lepidium ruderae* inbred line identified by code LPR-Z-1 (unpatented)

Plant:

Growth Habit: upright

Height: Approximately 90 cm.

Plant Spread: Approximately 50 cm.

Growth Rate: Approximately 4 months to achieve 90 cm.

Branching Characteristics: Moderately well branched.

Length of Primary Lateral Branches: 90 cm.

Diameter of Lateral Branches: 0.7 cm.

Quantity of Primary Lateral Branches: Ranges between to 2-8 per plant

Characteristics of Primary Lateral Branches:

Diameter: 1 cm.

Color: Near RHS Yellow-Green 145A

Texture: Glabrous

Strength: Strong, firm.

Internode length: Varies along the stem. Approximately 5 cm for the lower part of the stem, and approximately 2 cm for the upper part of the stem.

Foliage:

Leaf: Most foliage is basal. Cauline leaves occur as well.

The data refers to the basal leaves

Arrangement: Whorled

Quantity: Approximately 30 per branch.

Average Length: 8 cm.

Average Width: 2.5 cm.

Shape of blade: Pinnatisect

Apex: Acute

Base: Cuneate

Margin: Entire

Texture of top surface: Scabrous

Texture of bottom surface: Scabrous

Appearance top surface: Matte

Appearance bottom surface: Matte

Aspect (flat, wavy, concave, etc): Concave

Color:

Young foliage upper side: Near RHS Green 137A

Young foliage under side: Near RHS Green 137C

Mature foliage upper side: Near RHS Green 137B

Mature foliage under side: Near RHS Green 137C

Venation:

Type: Arcuate.

Venation color upper side: Near RHS Green 137D

Venation color under side: Near RHS Green 137D

Petiole:

Length: Average 2 cm.

Diameter: Average 0.3 cm.

Color: RHS Near RHS Green 138B

Texture: Scabrous

Inflorescence:

Natural flowering season: Spring (February to May in Israel)

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Days to flowering from a plantlet: Starting from seeds, approximately 12-16 weeks from planting.

Inflorescence and flower type and habit: The inflorescence type is a spike and the flower type is single, the habit is upright.

Rate of flower opening: 0.5 to 2 days from bud to fully opened flower.

Flower Longevity on Plant: 0.5 to 3 days

Persistent or Self-Cleaning: Self-Cleaning

Bud:

Shape: Globose

Length: Average 0.1 cm

Diameter: Average 0.1 cm

Color: Near RHS Yellow-Green 145A

Flower size:

Diameter: Approximately 1 mm.

Length: Approximately 2 mm.

Corolla/Petals: Not always present.

Arrangement: Cross shaped

Length: 0.1 to 0.2 mm

Width: 0.1-0.5 mm

Quantity: 4

Texture: smooth

Apex: obtuse

Base: cuneate

Shape: linear

Margin: entire

Aspect: concave

Color:

When opening:

Upper surface: Near RHS White 155A

Lower surface: Near RHS White 155A

Fully opened:

Upper surface: Near RHS White 155C

Lower surface: Near RHS White 155C

Aging:

Upper surface: Near RHS White 155D

Lower surface: Near RHS White 155D

Calyx/Sepals:

Quantity per flower: 4

Shape: oblong

Length: 0.08-0.7 mm

Width: 0.04-0.4 mm

Apex: acute

Base: cuneate

Margin: entire

Texture: smooth

Color:

Upper Surface: Near RHS Green 141B

Lower Surface: Near RHS Green 141B

Peduncle:

Length: Approximately 0.3-1.3 cm.

Diameter: Approximately 0.1-0.3 cm.

Color: Near RHS Yellow-Green 147B

Orientation: upright

Texture: smooth

Pedicle:

Length: Approximately 0.3-0.5 cm.

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Diameter: Approximately 0.03-0.1 cm.

Color: Near RHS Yellow-Green 146B

Orientation: upright

Texture: smooth

5 Fragrance: Not fragrant

Reproductive Organs:

Stamens:

Number: 2

Filament length: Approximately 0.7-0.8 mm.

10 Anthers:

Shape: Ovate

Length: Approximately 0.1-0.2 mm.

Color: Near RHS Yellow-White 158A

Pistil:

15 Style:

Number: 1

Length: Approximately 1 mm.

Color: Near RHS Yellow-Green 147B

Stigma:

20 Shape: two lobed

Color: Near RHS White 155A

Ovary Color: Near RHS Yellow-Green 146B

Temperature tolerance: Tolerates a range from approximately 8° C. to 40° C.

25 Other Characteristics of Note:

Color: yellow-green, closest to RHS 1 50D

Seeds/Fruit:

Fruits

Shape: Elliptic, apically winged.

30 Length: Approximately 1.8-2.5 mm.

Width: Approximately 1.5-2 mm

Texture: Smooth

Other: Fruiting pedicels are divaricate to horizontal, straight, puberulent

35 Seeds

Shape: oblong to ovate-oblong

Length: 1-1.5 mm

Width: 0.6-0.8 mm.

Disease/Pest Resistance and Susceptibility:

40 Neither resistance nor susceptibility to normal diseases and pests of *Lepidium* observed.

I claim:

1. A *Lepidium* plant named 'DLEPEMBEAD', representative seed deposited at the Korean Collection for Type Cultures (KCTC) having deposit Designation KCTC-12666BP.

45 2. A *Lepidium* seed that produces the plant of claim 1.

3. A plant part obtained from the *Lepidium* plant of claim 1.

4. A method for producing a *Lepidium* progeny plant comprising the steps of

50 (a) crossing *Lepidium* 'DLEPEMBEAD', representative seed having been deposited with the Korean Collection for Type Cultures (KCTC) under Designation KCTC-12666BP as a female or male parent with another *Lepidium* plant, and

55 (b) selecting progeny.

5. The method according to claim 4, wherein the second *Lepidium* plant is 'DLEPEMBEAD'.

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